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State of health security

Note by the Secretary-General

The Secretary-General hereby transmits a report provided by the World Health Organization on the state of health security, pursuant to General Assembly resolution 70/183.

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Report of the World Health Organization on the state of health security

Summary

The present report provides an overview of the state of health security, taking into account the deliberation by the World Health Assembly on the matter, pursuant to General Assembly resolution 70/183. The report highlights the drivers of international health crises and progress made on the implementation of the International Health Regulations (2005). The report gives an update on the situation of antimicrobial resistance and provides an overview of research and development in the health sector. It also reviews the latest developments with regard to the oversight of international health crises.

I. Introduction

1. The Ebola crisis in West Africa was a tragic reminder of the numerous challenges that international health crisis management continues to face. The outbreak highlighted the need to bolster international cooperation to improve the provision of public health-care services, better coordinate assistance and interventions and make national health-care systems more resilient. It also reminded the world of the socioeconomic, political and security impact that international health crises can have and how they can increase the risk for geographical expansion and possible international spread. The unprecedented yellow fever outbreak in central Africa in 2016 has further elucidated the challenges and potential risks for the international spread of disease in the context of limited vaccine availability and weak systems for disease prevention and control.

2. These sobering events have raised the profile and priority of the discourse on health security. In accordance with General Assembly resolution 70/183 on global health and foreign policy: strengthening the management of international health crises, the present document provides a report on the state of global health security.

II. Drivers of international health crises

Infectious hazards

3. New and re-emerging disease outbreaks can quickly and unexpectedly spread beyond borders, resulting in a large-scale international impact. As noted clearly and succinctly in "Protecting humanity from future health crises: Report of the High-level Panel on the Global Response to Health Crises" (A/70/723):

> communicable diseases continue to claim millions of lives. Recent outbreaks of influenza (H1N1 and H5N1), severe acute respiratory syndrome and Middle East respiratory syndrome have shown that even sophisticated health-care systems in developed countries can be challenged by the appearance of new or emergent pathogens. Notwithstanding its devastating impact in West Africa, the Ebola virus is not the most virulent pathogen known to humanity. Mathematical modelling by the Bill and Melinda Gates Foundation has shown that a virulent strain of an airborne influenza virus could spread to all major global capitals within 60 days and kill more than 33 million people within 250 days. Notwithstanding the significant threat, global efforts to prepare for epidemics have been woefully insufficient. The global legal instrument negotiated to ensure early warning and pandemic response, the International Health Regulations (2005), has been fully implemented by only one third of their 196 States parties. Similarly, only a small fraction of global investment in research and development for vaccines, therapeutics and diagnostics is devoted to the emerging communicable diseases that primarily affect the developing world.

4. Furthermore, with the rapid evolution of technology and data and an increasing appreciation of the world's interconnectedness, the frame for preventing, detecting, responding to and managing global epidemics has changed fundamentally in recent years. Some of the key shifts include managing emerging pathogens, as well as those that are well-known; relying on a much broader spectrum of

information sources, transitioning to a multisectoral approach; engaging and empowering local communities in all aspects of preparedness and response; and understanding that human activity and behaviour are the main drivers of the emergence and amplification of new pathogens (globalization, food, trade, population expansion, urbanization, tourism, migration, etc.). As a result, many traditional concepts and interventions, such as restrictions at points of entry and quarantine measures, may be outdated and increasingly difficult to implement. They need to be reviewed and new strategies and approaches must be developed as international borders become progressively more porous and the movement of people and goods follows ever-increasing and crowded paths. Disease outbreaks may be inevitable but epidemics are preventable.

Political instability and insecurity

5. According to the United Nations Office for the Coordination of Humanitarian Affairs of the Secretariat, the scale of global humanitarian needs is higher than ever. As at December 2015, there were an estimated 125 million people in need of humanitarian assistance worldwide. Between 1 January and 30 September 2016, the World Health Organization (WHO) and partners responded to major emergencies in 47 countries, including 31 acute emergencies and 16 protracted emergencies. This latter category includes the majority of humanitarian crises today, with an average length of seven years. Health systems must therefore be adequately prepared to address both acute and long-term health needs in order to minimize or even prevent significant health impacts.

Attacks on health care

6. The norms that govern the delivery of health-care services during emergencies include the right to life, the right to dignity, equal rights of all persons and the right to medical care. The First Geneva Convention calls for the protection and care of the wounded and sick and of medical units and establishments. The Humanitarian Charter and Minimum Standards in Humanitarian Response protect the right to humanitarian assistance, and the Humanitarian Principles underscore the importance of humanity, impartiality, neutrality and independence. Medical personnel are bound by duty of care and medical ethics.

7. However, in many emergency settings, these norms may be difficult to implement in full. Violence, obstruction and threats to health-care facilities, personnel, patients, vehicles and supplies occur frequently. Until recently, there was no publicly available source of consolidated information on attacks on health care in emergencies. As such, in 2016, WHO prepared the report *Attacks on Health Care: Prevent, Protect, Provide* as a first attempt to consolidate and analyse the data that are available from open sources.[1] While the data are not comprehensive, the findings shed light on the severity and frequency of the problem. Over the two-year period from January 2014 to December 2015, there were 594 reported attacks on health care, which resulted in 959 deaths and 1,561 injuries in 19 countries with

[1] See http://www.who.int/hac/techguidance/attacksreport.pdf?ua=1

emergencies. More than half the attacks were against health-care facilities and a quarter were against health-care workers. Sixty-two per cent of the attacks were reported to have intentionally targeted health care.

Population displacement and migration

8. The year 2015 saw the highest levels of forced displacement recorded since World War II. This situation underscores the importance of refugee and migrant health in the overall discourse on global health security. Indeed, large-scale humanitarian crises that generate major population displacements create additional public health challenges for the provision of health-care services to both migrants and host communities. Particularly pertinent issues are overcrowding in shelters or camps, inadequate sanitation and low population immunity against the most common pathogens, all of which considerably increase the risk of outbreaks of infectious disease. The protracted nature of many displacements exacerbates the situation and brings to the forefront the limitations of the current humanitarian response framework for medium and long-term assistance.

9. Nonetheless, response teams under the current framework can readily implement a number of interventions in emergency situations to minimize such risks among migrant and host populations, including health promotion, disease surveillance, vaccination campaigns and health-care service delivery. Longer-term interventions focus on capacity-building for emergency risk management. The end goal is to ensure that health-care delivery and other humanitarian assistance ultimately fall under the management of the national health-care system, in a way that is inclusive and attentive to the needs of these vulnerable populations.

Urbanization and shifting demographics

10. Today, more than half the world's population lives in urbanized landscapes. This urbanization process continues to intensify, with the highest growth rate occurring in the developing world. Many elements of the humanitarian and development framework (for example, working modalities, planning assumptions and methodology to detect and respond to outbreaks) must be revised and adapted to an urban context.

11. The recent responses to the yellow fever, Zika and Ebola outbreaks have identified a need for coordinated efforts from the humanitarian, development, civil society and private sector. Such efforts must focus on building capacity for needs and vulnerability analysis at the local level, as well as implementation within an urban, densely populated environment.

Changing weather patterns and other climate-related risks

12. Since the adoption of the Hyogo Framework for Action in 2005,[2] national risk reduction efforts for sudden onset disasters have been successfully implemented at the

[2] See https://www.unisdr.org/we/coordinate/hfa.

local, national, regional and global levels. For some hazards, the result has been a decrease in mortality. A clear example of the success of this work was seen during the recent El Niño Southern Oscillation phenomenon, which affected over 41 million people, leaving vulnerable populations exposed to extreme environmental conditions. Prompt management of health risks (for example, malnutrition, medical complications, vector-borne diseases and disruption to health-care services) helped to ensure the health security of the most vulnerable populations.

III. International Health Regulations (2005)

13. The Ebola crisis in West Africa prompted the international community to reassess its global priorities and to appreciate fully the importance of the International Health Regulations (2005) as a multilateral instrument capable of guiding countries, international organizations and partners, in their preparedness for major public health emergencies. Legally binding on 196 countries, the purpose and scope of the Regulations is to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks and which avoid unnecessary interference with international traffic and trade. This scope is not limited to any specific disease or manner of transmission, but covers illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans.[3] The importance of the Regulations as the foundation for strengthening global health security has been widely acknowledged at the highest levels of government, by the United Nations system and by civil society partners.

14. In accordance with paragraph 1 of article 54 of the International Health Regulations (2005) and World Health Assembly resolution WHA61.2 (2008),[4] States parties and the Director-General report annually to the Health Assembly on the implementation of the Regulations. Each year, the report reflects recent developments, giving an account of actions taken by the secretariat within the framework of the Regulations (2005). The 2016 report includes the international response to the Ebola virus disease, Middle East respiratory syndrome, poliomyelitis, avian influenza and Zika virus infection, with associated microcephaly and Guillain-Barré syndrome. The report also includes information about the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response and the first amendment to the Regulations (2005) regarding yellow fever vaccination. It describes the proposed shift from country self-reporting of core capacities under the Regulations to a more complete assessment of national capabilities using, inter alia, voluntary joint external evaluations.

[3] See http://apps.who.int/iris/bitstream/10665/246107/1/9789241580496-eng.pdf?ua=1/

[4] See http://www.who.int/ihr/A61_R2-en.pdf.

Emergency committees convened pursuant to the International Health Regulations (2005)

Ebola virus disease

15. Since the declaration of the Ebola outbreak in West Africa as a public health emergency of international concern in 2014, the relevant International Health Regulations Emergency Committee has met nine times. At its last meeting, held by teleconference on 29 March 2016, the Committee concluded that the Ebola situation in West Africa no longer constituted a public health emergency of international concern and that the corresponding temporary recommendations issued by the Director-General should be terminated. On the basis of the advice of the Emergency Committee and her own assessment of the situation, the Director-General terminated the public health emergency of international concern and the temporary recommendations and supported the public health advice provided by the Committee.[4]

16. The Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response, established and convened by the Director-General pursuant to decision WHA68(10) (2015), held its first meeting on 24 and 25 August 2015, intersessional meetings in October, November and December 2015 and February 2016, and its second and final meeting from 21 to 24 March 2016. The reports of the first meeting of the Review Committee and the intersessional meetings are available on the WHO website.[5] The final report of the Committee was transmitted to the sixty-ninth World Health Assembly in document A69/21.[6]

Middle East respiratory syndrome

17. The Middle East respiratory syndrome coronavirus has been circulating in the Arabian Peninsula for years, ever since it was first identified. By March 2016, laboratory-confirmed cases of infection had been reported to WHO by 26 countries in the Middle East, North America, Europe and Asia. Major hospital outbreaks occurred in the Republic of Korea in the period from May to August 2015 and in Saudi Arabia in August 2015.

18. Since 2013, the International Health Regulations (2005) Emergency Committee concerning Middle East respiratory syndrome coronavirus has met 10 times, most recently in September 2015.[7] At the latest meeting, the Committee advised that the situation still did not constitute a public health emergency of international concern. However, the virus continued to be transmitted from camels to humans, and from humans to humans in health-care settings. Continuing challenges included ensuring the reporting of asymptomatic cases that had tested positive for the virus, rapid information-sharing, the implementation of infection control measures and appropriate research studies. The Committee emphasized that

[4] See http://www.who.int/mediacentre/news/statements/2016/end-of-ebola-pheic/en/.
[5] See http://www.who.int/ihr/review-committee-2016/en/.
[6] See http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_21-en.pdf.
[7] See http://www.who.int/mediacentre/news/statements/2015/ihr-emergency-committee-mers/en/ (accessed 22 April 2016).

there was no public health justification for restricting trade or travel to prevent the spread of the Middle East respiratory syndrome coronavirus; screening at points of entry was considered unnecessary. However, raising awareness about the syndrome and its symptoms among travellers, particularly in the light of the hajj, was strongly advised.

Poliomyelitis

19. Since the declaration of a public health emergency of international concern on 5 May 2014, the International Health Regulations (2005) Emergency Committee regarding the international spread of poliovirus has met 10 times. In August 2016, the Committee agreed that the epidemiological situation still constituted a public health emergency of international concern and advised the extension of the revised temporary recommendations, focusing on large-scale population movements and increasing vaccination coverage among refugees, travellers and cross-border populations. The Committee was pleased that, as a result of the collaborative efforts between Afghanistan and Pakistan, there had been no international spread of wild poliovirus between the two countries since the previous meeting. It was gravely concerned, however, about the report from Nigeria of two new cases of acute flaccid paralysis in children owing to wild polio virus WPV1 in July 2016. The Committee noted the continued spread of poliovirus between Afghanistan and Pakistan and outbreaks of vaccine-derived poliovirus elsewhere and urged the regular review of the risk of international spread in high-risk areas. The Director-General endorsed the Committee's conclusions and issued temporary recommendations under the Regulations.[9]

20. By decision WHA68(9) (2015), the sixty-eighth World Health Assembly requested the Director-General to report to the sixty-ninth World Health Assembly on progress towards reduction in the risk of international spread of wild poliovirus (see document A69/26).

Zika virus, microcephaly and Guillain-Barré syndrome

21. On 1 February 2016, the Director-General convened the first meeting of the Emergency Committee on Zika virus under the International Health Regulations (2005), regarding clusters of cases of microcephaly and other neurological disorders in some areas affected by Zika virus. Based on the advice of the Emergency Committee, the Director-General declared that the cluster of cases of microcephaly and other neurological disorders reported in Brazil, following a similar cluster in French Polynesia in 2014, constituted a public health emergency of international concern and issued corresponding temporary recommendations. At its 4th meeting, on 2 September 2016, having considered the evidence presented, the Committee agreed that owing to continuing geographic expansion and considerable gaps in the understanding of the virus and its consequences, Zika virus infection and its associated congenital and other neurological disorders continued to be a public health emergency of international concern. The Emergency Committee reviewed the most recent evidence showing a link between Zika virus infection and microcephaly and agreed that, although the evidence for a causal link was stronger than in

[9] Available at http://www.who.int/mediacentre/news/statements/2016/10th-ihr-emergency/en/ (accessed 7 September 2016).

February 2016, additional research was still needed. The Director-General issued temporary recommendations reflecting that conclusion.[10]

22. From 1 January 2007 to 31 August 2016, Zika virus transmission was documented in a total of 69 countries and territories. Six countries also reported locally acquired infection in the absence of any known mosquito vectors, probably through sexual transmission. From 1 February to 31 August 2016, 11 countries reported evidence of person-to-person transmission of Zika virus. Based on observational, cohort and case-control studies, there is a growing scientific consensus that the virus is a cause of increased cases of Guillain-Barré syndrome, microcephaly and other neurological disorders being reported in a number of countries where Zika virus is circulating. WHO launched the Zika Strategic Response Plan, encompassing surveillance, response activities and research.[11] WHO is working closely with regional offices and affected countries on an integrated response, including mosquito surveillance and control, promotion of personal protective measures, support for pregnant women living in or returning from Zika virus-affected countries and management of additional complications relating to Zika virus infection. Increased investments are essential to combat the spread of Zika virus and manage its complications. To date, WHO and partners have identified funding requirements for the period through December 2017.

Progress on the implementation of the International Health Regulations (2005)

Capacity-building

23. The International Health Regulations (2005) require the development, strengthening and maintenance of core capacities for surveillance and response at designated points of entry. Starting in 2010, the International Health Regulations core capacity monitoring framework has used a self-assessment questionnaire completed by States parties to report to the World Health Assembly on the status and development of the minimum core public health capacities required under the Regulations. International Health Regulation capacity scores for 2015 are available on the WHO website.[12] As at 5 April 2016, 126 of 196 States parties had completed the self-assessment questionnaire sent in April 2015. Analysis of information from annual reporting by countries on International Health Regulation core capacity provided to the secretariat by the States parties suggests that progress has been made in the following areas: appropriate legislation and policy in place for the implementation of the Regulations; coordination and collaboration with other sectors for capacity-building; functional and improved detection capacities with early warning; coordinated preparedness and emergency response capacities; and improved communication to the public and to stakeholders. The actual level of capacity, however, is uncertain in some countries and efforts to ensure that

[10] Available from http://www.who.int/mediacentre/news/statements/2016/zika-fourth-ec/en (accessed on 7 September 2016).

[11] See http://apps.who.int/iris/bitstream/10665/246091/1/WHO-ZIKV-SRP-16.3-eng.pdf?ua=1&ua=1&ua=1 (accessed 7 September 2016).

[12] See International Health Regulation capacity scores for all reporting States parties for 2015, available from http://www.who.int/gho/ihr (accessed 22 April 2016).

capacities remain operational will require continuous strengthening of infrastructure, procedures and human resources. In addition, detection and response capacities for chemical and radiological events are often not yet in place. Details of 2015 scores provided by countries are available on the WHO website.[13]

24. The initial deadline for States parties to develop the core capacities required under the International Health Regulations (2005) was 2012, with potential extensions until 2016. Progress has been made, but the capacities have not been established in many countries. In 2014, the Review Committee on Second Extensions for Establishing National Public Health Capacities and on International Health Regulation Implementation recommended that the Director-General consider a variety of approaches for the shorter- and longer-term assessment and development of International Health Regulation core capacities (see document A68/22/Add.1, para. 43).

Coordination between multiple initiatives to implement the International Health Regulations (2005)

25. The recent renewed interest in the International Health Regulations (2005) as a global public good for health has generated numerous new initiatives to assess existing public health capacities within health systems and to support their development and strengthening through incentives and collaboration. Examples include initiatives for the strengthening of health systems, pandemic preparedness efforts, including the Pandemic Influenza Preparedness Framework, the strengthening of core capacities under the International Health Regulations (2005), preparedness for natural disasters (for instance, safe hospitals), the One Health Initiative, emergency preparedness programmes for the transport and biosecurity sectors, and the integration of country health emergency preparedness and preparedness for natural disasters and humanitarian crises. These initiatives require coordination and represent important opportunities for global public health and the WHO secretariat.

26. WHO has developed a new International Health Regulation monitoring and evaluation framework for core capacities.[14] In addition to the annual reporting, the framework includes after-action reviews, simulation exercises and independent (external) evaluation. The initial focus by the secretariat has been on the development of the independent evaluation component. In February 2016, the International Health Regulations (2005) Joint External Evaluation Tool[15] was finalized and, together with partners and experts, voluntary joint external evaluation missions to countries have begun. Preliminary experiences have shown positive results and partners have expressed interest in supporting this approach and in benefiting from joint external evaluation in the development or improvement of national action plans for country health emergency preparedness.

27. The other components of the new International Health Regulation monitoring and evaluation framework are being finalized, together with all relevant guides and tools, and will be posted on the WHO website. Reporting to the World Health

[13] See http://www.who.int/gho/ihr/en/(accessed 26 April 2016).
[14] See http://www.who.int/ihr/publications/concept_note_201507/en//.
[15] Available from http://www.who.int/ihr/publications/WHO_HSE_GCR_2016.2/en/ (accessed 1 April 2016).

Assembly using a new format is planned for 2017; data for 2016 will be collected, starting in June 2016, subject to approval by the Health Assembly of the new monitoring and evaluation framework.

28. WHO, in collaboration with partners, has developed a draft strategic framework for emergency preparedness to strengthen country and community emergency preparedness to ensure timely, efficient and effective response to public health hazards. Four major elements of emergency preparedness are operational readiness, health systems resilience, One Health approach and a whole-of-government/whole-of-society approach. Emergency preparedness follows an iterative cycle of assessment of risk and capacity, planning, coordinating, implementing, evaluating and exercising, and financing. Components of emergency preparedness and their application at the community, local, subnational, national, regional and global levels include governance, capacities and resources.

29. WHO and the Government of South Africa jointly convened a high-level partner and stakeholder meeting on the theme "Building health security beyond Ebola" in Cape Town, South Africa, from 13 to 15 July 2015. The meeting brought together more than 200 participants, including representatives of countries affected by Ebola virus disease. Its goal was to agree on priority actions to boost health security, with the aim of strengthening health systems and capacities for implementing the International Health Regulations (2005). Participants agreed on the need for collective action on national and global health security and set out expectations regarding future steps in aligning multi-stakeholder initiatives. There was broad agreement on the role of WHO as a convenor of countries and partners. WHO proposed a collaborative approach between international and national stakeholders to strengthen and sustain the health system capacities needed to implement the Regulations.

30. The Government of Finland hosted a senior-level meeting on establishing an alliance for country assessments for global health security and implementation of the International Health Regulations (2005) (Geneva, 14 March 2016). The meeting brought together more than 20 countries as well as representatives from multilateral institutions and donors to propose an alliance for assessment through joint external evaluations of core capacities under the Regulations (2005). It was proposed that the alliance include a small secretariat within WHO and an advisory group to be established in support of the country assessment process.

31. The Ministry of Social Affairs, Health and Women's Rights of France and the European Commission organized a high-level conference on global health security, held in Lyon, France, on 22 and 23 March 2016. The event was co-sponsored by WHO and the European Commission under the patronage of the Netherlands' presidency of the Council of the European Union. The main outcome of the conference was the commitment to reinforce global health security through the implementation of the International Health Regulations (2005). By bringing together many institutions, as well as private and public partners and the human and animal health sectors, the conference increased awareness about the Regulations and the need to accelerate their implementation. Participants reaffirmed key principles of the Regulations: a multisectoral approach, the accurate assessment of capacities, the fundamental aspects of the strengthening of health systems and human resources and inter-country cooperation.

32. On 8 and 9 October 2015, the health ministers of the seven leading industrialized nations (Group of Seven (G-7)) met in Berlin. Their broad-ranging final declaration drew attention, inter alia, to the central mandate and committed leadership of WHO and the fact that the legally binding International Health Regulations (2005) were the primary international instrument designed to help protect countries from the international spread of disease, including public health risks and public health emergencies. The ministers supported the International Health Regulations (2005) in expressly requiring countries to collaborate with each other in developing and maintaining the core capacities, noting that full compliance with the Regulations was ultimately each country's responsibility.[16]

33. These commitments were reinforced in the Kobe Communiqué, issued by the health ministers of the Group of Seven at their meeting of 11 and12 September 2016, in which they indicated that the effective implementation of the International Health Regulations (2005) was more important than ever. The ministers reaffirmed the central role of WHO in coordinating the response to and leading on preparedness for global public health emergencies and welcomed the report of the Review Committee on the Role of the International Health Regulations (2005). The representatives of the seven countries committed to reporting their progress by the end of 2016 towards implementing the commitment by the G-7 leaders to offer assistance to 76 countries and regions to build International Health Regulation core capacities. The communiqué endorsed the new approach to core capacities assessment, noting that the ministers supported the efforts of partners to develop national plans and to achieve the common targets of the WHO Joint External Evaluation Tool for the International Health Regulations in close coordination with other relevant organizations.[17]

First amendment to the International Health Regulations (2005): vaccination against yellow fever

34. The International Health Regulations (2005) were amended for the first time in 2014. The amendment was proposed by the WHO Director-General in the light of a recommendation from the Strategic Advisory Group of Experts on Immunization, in which it concluded that a single dose of yellow fever vaccine confers life-long protection. The sixty-seventh World Health Assembly accordingly adopted resolution WHA67.13 (2014) to update annex 7 to the Regulations, revising the period of effectiveness of vaccination against yellow fever and the validity of the related certificate from 10 years to the life of the person vaccinated. The amendment entered into force in July 2016.

35. In response to a request by the sixty-eighth World Health Assembly, in which it was noted that vaccination against yellow fever might be required of any traveller leaving an area where WHO had determined that a risk of yellow fever transmission was present, the Director-General has started to publish an updated online list of countries that accept a certificate of vaccination against yellow fever for life and has established a scientific and technical advisory group to map the risk of yellow fever and provide guidance on vaccination for travellers (see resolution WHA68.4 (2015)).

[16] See http://www.bmg.bund.de/fileadmin/dateien/Downloads/G/G7-Ges.Minister_2015/G7_Health_Ministers_Declaration_AMR_and_EBOLA.pdf (accessed 22 April 2016).

[17] See http://www.mhlw.go.jp/seisakunitsuite/bunya/hokabunya/kokusai/g7kobe/Kobe_Communique_en.pdf (accessed 30 September 2016).

Next steps in implementation of the International Health Regulations (2005)

36. In May 2016, the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response presented its recommendations to the Director-General at the sixty-ninth World Health Assembly.[18] The Review Committee concluded that it was imperative to prioritize the implementation of the Regulations in all countries and to strengthen the secretariat's capacity and partnerships to support States parties. The Committee made 12 recommendations to ensure the implementation of the Regulations on the basis of new proposals and to improve compliance with the Regulations by developing a global strategic plan; financing the implementation of the Regulations; increasing awareness about them; introducing and promoting the external assessment of core capacities; improving the risk assessment and risk communication work by the secretariat; enhancing compliance with requirements for additional measures and temporary recommendations; strengthening national International health Regulation focal points; prioritizing support measures to the most vulnerable countries; and boosting core capacities under the International Health Regulations (2005) within the broader health systems strengthening agenda.

37. The World Health Assembly adopted decision WHA69(14) in which, inter alia, it requested the Director-General to develop for the consideration of the Regional Committees in 2016 a draft global implementation plan for the recommendations of the Review Committee that included immediate planning to improve the delivery of the International Health Regulations (2005) by reinforcing existing approaches and that indicated a way forward for dealing with new proposals that required further Member State technical discussions.[19] The draft global implementation plan was discussed by the WHO Regional Committees[20] and the Director-General will submit a final version of the plan for the consideration of the WHO Executive Board at its 140th session in January 2017.

IV. Other recent normative developments

38. It is widely recognized that strong health systems require sustained financial, infrastructural and, in the context of humanitarian emergencies, security support. In the context of the Millennium Development Goals, for example, most of the countries that were farthest from completion in 2015 were those that had undergone a period of sustained political turbulence requiring humanitarian and development support. In 2016, the international community made remarkable commitments and progress towards sustainable development. Noteworthy achievements are:

[18] See document A69/21, available from http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_21-en.pdf.

[19] See document A69/DIV/3, available from http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_DIV3-en.pdf.

[20] See http://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=10284&Itemid=2593 (accessed 5 September 2016), http://www.searo.who.int/mediacentre/events/governance/rc/sea-rc69-10_9.2.pdf?ua=1 (accessed 5 September 2016) and http://www.euro.who.int/__data/assets/pdf_file/0011/315875/66wd26e_GlobalImplementPlanHIR_160629.pdf?ua=1 (accessed 7 September 2016).

- **2030 Agenda for Sustainable Development.** The Sustainable Development Goals make explicit the link between health and sustainable development, with the understanding that global health promotion helps to reduce poverty and inequality, while advancing peace, security and the foundations for economic growth and prosperity (see A/70/PV.80).

- **Sendai Framework for Disaster Risk Reduction 2015-2030.** The Framework advocates for enhanced cooperation between health authorities and multisectoral stakeholders to improve health outcomes for people and countries at risk for disasters. It also calls for the development and implementation of multi-hazard policies and plans (including biological hazards management).

- **World Humanitarian Summit.** The World Humanitarian Summit, convened by Secretary-General Ban Ki-moon (Istanbul, 23 and 24 May 2016), generated commitments to reduce suffering and deliver better for people around the globe. The participants supported a new, shared Agenda for Humanity, developed to prevent and reduce human suffering. Global health falls under core responsibility three, "Leave no one behind", of the Agenda. The global health special session urged commitment to a response structure that emphasizes complementarity, flexibility and the leveraging of core competencies for public health emergencies of international concern.

V. Antimicrobial resistance

39. Microorganisms (for example, bacteria, fungi, viruses and parasites) are increasingly developing resistance to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials and anthelmintics). Known as antimicrobial resistance, this process threatens the effective prevention and treatment of an ever-increasing range of infections, which in turn prolongs illness, disability and death and increases the risk of spread to others. Moreover, the misuse and overuse of antimicrobials in people and animals is accelerating this process.

40. As such, antimicrobial resistance poses a particularly serious and fundamental risk to the health security of countries and people: the (re)emergence of new or older pathogens poses a health risk because they can be deadly, difficult to treat or prevent and cause widespread anxiety. Antimicrobial-resistant pathogens have the same potential across a very broad range of organisms. Moreover, many of the actions needed to address health security, such as the strengthening of national capacities, improving communication and coordination and the development of new technologies, are exactly the same as those needed for emerging pathogens.

Present situation

Resistance in bacteria

41. Antibiotic resistance is present in every country. The resistance of Klebsiella pneumoniae — common intestinal bacteria that can cause life-threatening infections — to a last-resort treatment (carbapenem antibiotics) has spread to all regions of the world. K. pneumoniae is a major cause of hospital-acquired infections such as pneumonia, bloodstream infections and infections in newborns and intensive-care unit patients. In some countries, owing to resistance, carbapenem antibiotics do not work in more than half of people treated for K. pneumoniae infections.

42. Resistance by E. coli bacteria to one of the most widely used medicines for the treatment of urinary tract infections (fluoroquinolone antibiotics) is very widespread. There are countries in many parts of the world where this treatment is now ineffective in more than half of patients.

43. Treatment failure in respect of the last-resort medicine for gonorrhoea (third-generation cephalosporin antibiotics) has been confirmed in at least 10 countries (Australia, Austria, Canada, France, Japan, Norway, Slovenia, South Africa, Sweden and the United Kingdom of Great Britain and Northern Ireland).

44. Resistance to first-line drugs to treat infections caused by Staphylococcus aureus — a common cause of severe infections in health-care facilities and the community — is widespread. People with methicillin-resistant Staphylococcus aureus are estimated to be 64 per cent more likely to die than people with a non-resistant form of the infection.

45. Colistin is the last-resort treatment for life-threatening infections caused by enterobacteriaceae, which are resistant to carbapenems. Resistance to colistin has recently been detected in several countries and regions, making infections caused by such bacteria untreatable.

Resistance in tuberculosis

46. WHO estimates that, in 2014, there were about 480,000 new cases of multidrug-resistant tuberculosis, a form of tuberculosis that is resistant to the two most powerful anti-tuberculosis drugs. Only about a quarter of these (123,000 cases) were detected and reported. Multidrug-resistaat tuberculosis requires treatment courses that are much longer and less effective than those for non-resistant tuberculosis. Globally, only half of multidrug-resistant tuberculosis patients were successfully treated in 2014.

47. Extensively drug-resistant tuberculosis, a form of tuberculosis that is resistant to at least four of the core anti-tuberculosis drugs, has been identified in 105 countries. An estimated 9.7 per cent of people with multidrug-resistant tuberculosis have extensively drug-resistant tuberculosis.

Resistance in malaria

48. As at July 2016, resistance to the first-line treatment for P. falciparum malaria (artemisinin-based combination therapies) has been confirmed in five countries of

the Greater Mekong subregion (Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam). In most places, patients with artemisinin-resistant infections recover fully after treatment, provided that they are treated with an artemisinin-based combination therapy containing an effective partner drug. However, along the border between Cambodia and Thailand, P. falciparum has become resistant to almost all available antimalarial medicines, making treatment more challenging and requiring close monitoring. There is a real risk that multidrug resistance will soon emerge in other parts of the subregion as well. The spread of resistant strains to other parts of the world could pose a major public health challenge and jeopardize important recent gains in malaria control. The WHO strategy for malaria elimination in the Greater Mekong subregion (2015-2030) was endorsed by all five countries, in addition to China.

Resistance in HIV

49. In 2010, an estimated 7 per cent of people starting antiretroviral therapy in developing countries had drug-resistant HIV. In developed countries, the figure was 10 to 20 per cent. Some countries have recently reported levels at or above 15 per cent among those starting HIV treatment and up to 40 per cent among people restarting treatment. This requires urgent attention. Increasing levels of resistance have important economic implications, as second- and third-line regimens are 3 times and 18 times more expensive, respectively, than first-line drugs.

50. Since September 2015, WHO has recommended that everyone living with HIV start antiretroviral treatment. Greater use of the treatment is expected to further increase antiretroviral therapy resistance in all regions of the world. To maximize the long-term effectiveness of first-line antiretroviral therapy regimens and to ensure that people are taking the most effective regimen, it is essential to continue monitoring resistance and to minimize its further emergence and spread. In consultation with countries, partners and stakeholders, WHO is currently developing a new global action plan on HIV drug resistance (2017-2021).

Resistance in influenza

51. Antiviral drugs are important for the treatment of epidemic and pandemic influenza. Thus far, virtually all influenza A viruses circulating in humans have been resistant to one category of antiviral drugs, namely, M2 inhibitors (amantadine and rimantadine). However, the frequency of resistance to the neuraminidase inhibitor oseltamivir remains low (1-2 per cent). Antiviral susceptibility is constantly monitored through the WHO Global Influenza Surveillance and Response System.

Need for coordinated action

52. Antimicrobial resistance is a complex problem that affects all of society and is driven by many interconnected factors. Coordinated action is required to minimize the emergence and spread of antimicrobial resistance. In May 2014, the sixty-seventh World Health Assembly adopted resolution WHA67.25 on antimicrobial resistance, in which the Assembly requested, inter alia, that the Director-General develop a draft global action plan to combat antimicrobial resistance. In May 2015, the global action plan on antimicrobial resistance was adopted through resolution

WHA 68.7. Also in that resolution, the Assembly called upon the Director-General to elaborate, in consultation with the Secretary-General, options for the conduct of a high-level meeting in 2016, on the margins of the General Assembly, including potential deliverables.

53. On 21 September 2016, the General Assembly convened the high-level meeting on antimicrobial resistance, pursuant to paragraph 19 of its resolution 70/183. The outcomes of the meeting reflect awareness that antimicrobial resistance poses a profound threat to human health. Member States underscored the need for an effective "one health" approach involving coordination among multiple international sectors, including human and veterinary medicine, agriculture, food production, finance and environment. There is also recognition of the need for solidarity to ensure that resources are available to countries to combat antimicrobial resistance. In addition, there is broad consensus that greater innovation and investment are required in research and development of new antimicrobial medicines, vaccines and diagnostic tools.

VI. Research and development

54. In its decision WHA68(10) of May 2015, the sixty-eighth World Health Assembly welcomed the development of a blueprint, in consultation with Member States and relevant stakeholders, for accelerating research and development in epidemics or health emergency situations where there are no, or insufficient, preventive, and curative solutions, taking into account other relevant work streams within WHO.

55. At the request of its 194 member States, WHO has convened a broad global coalition to develop the research and development blueprint as a platform for accelerating research and development for emerging pathogens likely to cause severe outbreaks in the near future, and for which few or no medical countermeasures exist.

56. The research and development blueprint seeks to create an enabling environment through which the research and development community, through increased funding, data-sharing and partnerships, can drive change in the public health landscape to provide an elevated level of global impact. In particular, the blueprint will reduce the time between the declaration of a public health emergency of international concern and the availability of effective tests, vaccines and medicines that can be used to save lives and avert a crisis. Three approaches will be used to improve preparedness under the research and development blueprint.

(a) **Improving coordination and fostering an enabling environment.** This approach includes a set of interrelated actions — for example, organizational, political, informational and cultural — that have an impact on the global capacity to promptly conduct research in the context of epidemics:

(i) Building an effective coordination framework;

(ii) Outlining innovative, transparent and aligned funding processes;

(iii) Encouraging effective communication;

(b) **Accelerating research and development processes.** This approach includes all actions needed to implement critical research in a safe, effective and timely way. The facilitating role of WHO is to ensure that priority actions are designed and implemented in a consensual and coordinated fashion:

(i) Assessing epidemic threat and defining priority pathogens;

(ii) Developing research and development road maps to accelerate the evaluation of diagnostics, therapeutics and vaccines;

(iii) Outlining appropriate regulatory and ethical pathways;

(c) **Developing new norms and standards adapted to the epidemic context.** Innovative international norms and standards are one way to overcome the scientific and coordination barriers faced by research and development during epidemics. WHO efforts will help to maximize the consistency, robustness and effectiveness of research efforts and interventions:

(i) Supporting the expansion of capacity to implement adequate study designs;

(ii) Developing guidance and tools to frame collaborations and exchanges;

(iii) Anticipating evidence needs to inform regulatory review and policy development.

57. Several consultations have already been held among national Governments and public health agencies, researchers, social scientists and industry. They have identified major bottlenecks to international collaboration; agreed upon basic data-sharing principles; shortlisted 10 priority high-risk viral pathogens for immediate action; started to identify, for those pathogens, the main activities needed to promote strategic research in advance of and during outbreaks; and explored innovative approaches to conducting clinical trials.

58. In alignment with the WHO research and development blueprint, stakeholders from international organizations, governments, industry, public and philanthropic research and development funders, academic institutions, non-governmental organizations and civil society groups agreed at the World Economic Forum in Davos, 2016, to explore new ways of working to drive vaccine innovation to address public health threats. This initiative is known as the Coalition for Epidemic Preparedness Innovations. The vision of the Coalition is that vaccines will play the fullest possible part in managing outbreaks of infectious diseases with epidemic potential, at the earliest possible stage, so that they do not become public health emergencies. The Coalition aims to achieve this by creating an innovative partnership among the public, private, philanthropic and civil society sectors, to take an "end-to-end" approach to vaccine development, predominantly in cases where there is no commercial market.

59. A series of high-level interactive workshops and teleconferences has been held since January 2016 to develop initial proposals for the Coalition. At this stage, pending confirmation of initial funding commitments, the formal launch of the Coalition is planned for the annual meeting at Davos in January 2017.

VII. Increasing capacities in the United Nations system

60. Further to the call to improve the ability of the international community to support responses by Member States to health crises, a number of substantial efforts have recently taken place. These include the establishment of the new WHO Outbreaks and Health Emergencies Programme, the development of standard operating protocols for infectious hazard management under the auspices of the Inter-Agency Standing Committee, the creation of innovative and rapidly available financing mechanisms and new platforms for research and development. Given that these efforts are covered extensively in other documentation, they are mentioned here without further elaboration.

VIII. Oversight of international health crises capacities

61. Expectations are high that the lessons learned from the Ebola crisis and other international health crises will be implemented efficiently and effectively. To ensure this at the international level, two oversight entities have been established: the Global Health Crises Task Force of the Secretary-General and the Independent Oversight and Advisory Committee for the WHO Health Emergencies Programme.

Global Health Crises Task Force of the Secretary-General

62. The Global Health Crises Task Force was established by the Secretary-General to support and monitor the implementation of recommendations developed by his High-level Panel on the Global Response to Health Crises. In February 2016, the Panel issued its report "Protecting humanity from future health crises" (A/70/723) and in April, the Secretary-General issued his observations on the Panel's recommendations in his report entitled "Strengthening the global health architecture" (A/70/824). In its work, the Task Force will ensure that the implementation of the Panel's recommendations is aligned with the observations of the Secretary-General.

63. The Task Force will produce regular updates for the Secretary-General, describing progress on the implementation of the Panel's recommendations. The Task Force will also bring to the attention of the Secretary-General issues relating to emerging health crises and to gaps or weaknesses in the global health architecture.

64. The membership of the Task Force is drawn from across the United Nations system as well as external experts. These are distinguished individuals with backgrounds in infectious diseases, community health care, public health and development and with experience in risk assessment, the implementation of humanitarian action, the management of outbreak responses, financing, research and innovation.

65. The Task Force will exercise its functions for one year, starting from July 2016.

Independent Oversight and Advisory Committee for the WHO Health Emergencies Programme

66. On 29 March 2016, the Director-General of WHO established the Independent Oversight and Advisory Committee to provide oversight and monitoring of the development and performance of the WHO Health Emergencies Programme, guide the Programme's activities, advise the Director-General on issues within its mandate and report findings through the Executive Board to the Health Assembly.[21] Reports of the Committee will be shared with the Secretary-General of the United Nations and with the Inter-Agency Standing Committee.

67. The Committee consists of eight members who have extensive experience in a broad range of disciplines, including public health, infectious diseases, humanitarian crises, public administration, emergency management, community engagement, partnerships and development.

68. The Committee has met three times and will submit its first report to the 140th session of the WHO Executive Board in January 2017.

IX. Conclusion

69. **While progress has been made on many fronts since the Ebola crisis in West Africa, the state of global health security remains of concern. The drivers of health crises continue to increase in number and severity, while global capacities at the international and national levels still require substantial strengthening. Global health security and its constituent elements, including preparedness, resilience, response capacity, recovery opportunities, financing and research and development, must continue to be at the forefront of the political and development agendas for the foreseeable future.**

[21] See http://www.who.int/about/who_reform/emergency-capacities/oversight-committee/en/ (accessed 2 May 2016).